

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (*currently amended*): A cultured eukaryotic ~~host~~-cell transformed with a nucleic acid expression construct which construct comprises comprising

- (a) a nucleotide sequence that (i) encodes ~~encoding a~~ xylose isomerase and comprising comprises an amino acid sequence that ~~has~~-is at least 70 % identical sequence identity with the amino acid sequence of SEQ ID NO:1, and
- (b) operatively linked thereto, a promoter that drives expression of the xylose isomerase coding sequence in the cell,

wherein, expression of ~~when the nucleic acid construct is expressed, confers on~~ the ~~host~~-cell ~~acquires the ability to~~ directly isomerize grow on xylose to xylulose as a carbon source.

2. (*currently amended*): A transformed host cell according to claim 1, wherein the ~~host~~-cell is a yeast cell.

3. (*previously presented*) The yeast cell according to claim 18 that is a member of a species selected from the group consisting of *S. cerevisiae*, *S. bulderi*, *S. barnetti*, *S. exiguus*, *S. uvarum*, *S. diastaticus*, *K. lactis*, *K. marxianus*, and *K. fragilis*.

4. (*currently amended*): A transformed ~~host~~-cell according to claim 1, wherein the ~~host~~-cell is a filamentous fungus.

5. (Cancelled)

6. (*currently amended*) A transformed ~~host~~-cell according to claim 1 [[5]], wherein the promoter is insensitive to catabolite repression in the ~~host~~-cell.

7. (*currently amended*) A transformed ~~host~~-cell according to claim 1 that further comprises a genetic modification that results in:

- (a) increased transport of xylose into the host cell;
- (b) increased xylulose kinase activity;
- (c) increased flux of the pentose phosphate pathway;
- (d) decreased sensitivity to catabolite repression;

- (e) increased tolerance to ethanol, osmolarity or organic acids; or
- (f) decreased production of by-products,

which increase or decrease is in comparison to a similar cell that does not comprise said genetic modification.

8. (*currently amended*) A transformed ~~host~~-cell according to claim 7, wherein the genetic modification results in (i) overexpression of an endogenous gene, (ii) expression of a heterologous gene, or (iii) a combination of (i) and (ii), and wherein the gene being expressed or overexpressed is selected from the group consisting of a gene encoding:

- (a) a hexose transporter;
- (b) a pentose transporter;
- (c) a xylulose kinase;
- (d) an enzyme from the pentose phosphate pathway,
- (e) a glycolytic enzyme, and
- (f) an ethanologenic enzyme.

9. (*currently amended*) A transformed ~~host~~-cell according to claim 7, wherein the genetic modification results in inactivation of an endogenous gene ~~which is~~ selected from the group consisting of:

- (a) a gene encoding a hexose kinase
- (b) the *Saccharomyces MIG1* gene;
- (c) the *Saccharomyces MIG2* gene; and
- (d) a gene homologous to (a), (b) or (c) and which hybridizes thereto.

10. (*currently amended*) A transformed ~~host~~-cell according to claim 1 that further expresses one or more enzymes that confers on the cell the ability to produce lactic acid, acetic acid, succinic acid, amino acids, 1,3-propanediol, ethylene, glycerol, a β -lactam antibiotic or a cephalosporin.

11. (*currently amended*) A transformed ~~host~~-cell according to claim 10 that further comprises a genetic modification that results in decreased alcohol dehydrogenase activity.

12. (*currently amended*) A process for producing ethanol, comprising the steps of:
- (a) fermenting a medium containing a source of xylose with the transformed ~~host~~-cell of claim 1, which ~~host~~-cell ferments xylose to ethanol, and, optionally,
 - (b) recovering the ethanol.
13. (*previously presented*) A process according to claim 12, wherein the medium also contains a source of glucose.
14. (*previously presented*) A process according to claim 12 wherein the production of ethanol occurs at a rate of at least 0.5 g ethanol per liter per hour.
15. (*previously presented*) A process according to claim 12, wherein the ethanol yield is at least 50%.
16. (*currently amended*) A process for producing, as a fermentation product, lactic acid, acetic acid, succinic acid, an amino acid, 1,3-propanediol, ethylene, glycerol, a β -lactam antibiotic or a cephalosporin, which process comprises the steps of:
- (a) fermenting a medium containing a source of xylose with the transformed ~~host~~-cell of claim 10, which ~~host~~-cell ferments xylose to yield the fermentation product, and, optionally,
 - (b) recovering the fermentation product.
17. (*previously presented*) A process according to claim 16, wherein the medium also contains a source of glucose.
18. (*previously presented*) The yeast cell of claim 2 that is a member of a genus selected from the group consisting of *Saccharomyces*, *Kluyveromyces*, *Candida*, *Pichia*, *Schizosaccharomyces*, *Hansenula*, *Kloeckera*, *Schwanniomyces*, and *Yarrowia*.
19. (*previously presented*) The filamentous fungus cell of claim 4 that is a member of a genus selected from the group consisting of *Aspergillus*, *Trichoderma*, *Humicola*, *Acremonium*, *Fusarium*, and *Penicillium*.
20. (*currently amended*) The process of claim 16 wherein the ~~host~~-cell further comprises a genetic modification that results in decreased alcohol dehydrogenase activity.

21. (new) A cultured eukaryotic according to claim 1, wherein the nucleotide sequence encodes xylose isomerase that is at least 80 % identical with SEQ ID NO:1.
22. (new) A cultured eukaryotic according to claim 21, wherein the nucleotide sequence encodes xylose isomerase that is at least 90 % identical with SEQ ID NO:1.
23. (new) A cultured eukaryotic according to claim 22, wherein the nucleotide sequence encodes xylose isomerase that is at least 95 % identical with SEQ ID NO:1.
24. (new) A cultured eukaryotic according to claim 23, wherein the nucleotide sequence encodes xylose isomerase the sequence of which is SEQ ID NO:1.